Gymnema *(Gymnema sylvestre)*

Common names: Gurmarbooti, gurmar

Parts used and where grown: *Gymnema sylvestre* is a woody climbing plant that grows in the tropical forests of central and southern India. The leaves are used in herbal medicine preparations. *G. sylvestre* is known as periploca of the woods in English and meshasringi (meaning "ram's horn") in Sanskrit. The leaves, when chewed, interfere with the ability to taste sweetness, which explains the Hindi name gurmar—"destroyer of sugar."

Historical or traditional use (may or may not be supported by scientific studies): Gymnema has been used in India for the treatment of diabetes for over 2,000 years. The primary application was for adult-onset diabetes (NIDDM), a condition for which it continues to be recommended today in India. The leaves were also used for stomach ailments, constipation, water retention, and liver disease.

Active constituents: The hypoglycemic (blood sugar-lowering) action of gymnema leaves was first documented in the late 1920s.1 This action is gradual in nature, differing from the rapid effect of many prescription hypoglycemic drugs. Gymnema leaves raise insulin levels, according to research in healthy volunteers.2 According to animal studies, this may be due to regeneration of the cells in the pancreas that secrete insulin.3 The leaves are also noted for lowering serum cholesterol and triglycerides.4 While

studies have shown that a water-soluble acidic fraction of the leaves provides hypoglycemic actions, the specific constituent in the leaves responsible for this action has not been clearly identified. Some researchers have suggested gymnemic acid as one possible candidate.5 Further research is needed to clearly determine which constituent is responsible for this effect. Gurmarin, another constituent of the leaves, and gymnemic acid have been shown to block the ability to taste sweets in humans.6

How much is usually taken? Recent studies in India have used 400 mg per day of a water-soluble acidic fraction of the gymnema leaves. In adult-onset diabetics, ongoing use for periods as long as eighteen to twenty-four months has proven successful.7 In IDDM (juvenile onset) diabetic patients, a similar amount has been used successfully as an adjunct to ongoing use of insulin.8 The extract used in these studies contains approximately 2,990 gymnemic acids. Consult closely with a physician, as insulin doses may need to be lowered while taking gymnema. Traditionally, 2–4 grams of the leaf powder per day is used.

Are there any side effects or interactions? Used at the amounts suggested, gymnema is generally safe and devoid of side effects. The safety of gymnema during pregnancy and lactation has not yet been determined. Persons with NIDDM should only use gymnema to lower blood sugar under the clinical supervision of a healthcare professional. Gymnema cannot be used in place of insulin to control blood sugar by persons with IDDM or NIDDM.

References:

1. Mhasker KS, Caius JF. A study of Indian medicinal plants. II. *Gymnema sylvestre* R.Br. *Indian J Med Res Memoirs* 1930;16:2–75.
2. Shanmugasundaram KR, Panneerselvam C, Sumudram P, Shanmugasundaram ERB. Insulinotropic activity of *G. sylvestre,* R.Br. and Indian medicinal herb used in controlling diabetes mellitus. *Pharmacol Res Commun* 1981;13:475–86.
3. Shanmugasundaram ERB, Leela Gopinath K, Radha Shanmugasundaram K, Rajendran VM. Possible regeneration of the islets of Langerhans in streptozotocin diabetic rats given *Gymnema sylvestre* leaf extracts. *J Ethnopharmacol* 1990;30:265–79.
4. Bishayee A, Chatterjee M. Hypolipidemic and antiatherosclerotic effects of oral *Gymnema sylvestre* R.Br. leaf extract in albino rats fed on a high fat diet. *Phytother Res* 1994;8:118–20.
5. Gymnema. *Lawrence Review of Natural Products* Aug 1993 (monograph).
6. Fushiki T, Kojima A, Imoto T, et al. An extract of *Gymnema sylvestre* leaves and purified gymnemic acid inhibits glucose-stimulated gastric inhibitory peptide secretion in rats. *J Nutr* 1992;122:2367–73.
7. Baskaran K, Ahmath BK, Shanmugasundaram KR, Shanmugasundaram ERB. Antidiabetic effect of a leaf extract from *Gymnema sylvestre* in non-insulin-dependent diabetes mellitus patients. *J Ethnopharmacol* 1990;30:295–305.
8. Shanmugasundaram ERB, Rajeswari G, Baskaran K, et al. Use of *Gymnema sylvestre* leaf extract in the control of blood glucose in insulin-dependent diabetes mellitus. *J Ethnopharmacol* 1990;30:281–94.